

S-300V

Air Defence Missile System



Mission

The S-300V air defence missile system is designed to provide air defence of task forces and key military and state installations against mass attacks by theatre and tactical ballistic missiles, aeroballistic and cruise missiles, strategic and tactical aircraft, as well as to engage loitering ECM aircraft and other air strike assets.

The S-300V system is a mobile multi-channel long-range surface-to-air missile system. It can provide effective theatre missile and air defence.

The system has high jamming immunity, and therefore is capable of engaging aerial targets in heavy ECM and fire counteraction, in any weather, by day and night.

Composition

A typical S-300V system structure includes:

- target detection and designation unit;
- up to four SAM systems;
- missile support and technical maintenance assets.

The target detection and designation unit includes:

- 9S457-1 command post;
- 9S15MV (9S15MT) all-round surveillance radar;
- 9S19M2 sector-surveillance radar.

Each SAM system typically includes:

- 9S32-1 multi-channel missile guidance radar;
- up to six launchers in two variants: 9A83-1 with four 9M83 missiles in transport-launch containers and 9A82 with two 9M82 missiles in each TLC;
- up to six loader/launchers in two variants:

Basic specifications

Max target detection range, km	up to 250
Aerodynamic target engagement envelope, km:	
range	up to 100
altitude	0.025 – 30
Ballistic target engagement range, km	up to 40
Max target speed, m/s	3,000
Target radar cross section, sq. m	0.05 +
Max hostile ballistic missile launch range, km	1,100
Number of simultaneously engaged targets	up to 24
Number of simultaneously guided missiles	up to 48
Missile launch preparation time, sec	15
Into/out-of-action time, min	5
ADMS continuous operation time, hrs	up to 48



9A84 with four 9M83 SAMs in TLC, and
9A85 with two 9M82 SAMs in each TLC.

A typical ADM system, consisting of four 9A83-1 launchers, four 9A84 loader/launchers, two 9A82 launchers and two 9A85 loader/launchers, has ammunition allowance of 32 9M83 missiles and eight 9M82 SAMs.

The ADMS technical support facilities include:

- maintenance and repair assets for all the elements of the ADM system, as well as automated integrated missile test and monitoring system;
- missile TLC short-term storage and transportation assets, as well as rigging equipment for missiles loading/unloading;
- training assets;
- a group set of spare parts, tools and accessories for all the elements of the ADM system.



S-300VM (ANTEY-2500)

Air Defence Missile System



Mission

The S-300VM (Antey-2500) air defence missile system is designed to protect task forces and vital national and military installations from mass attacks of medium range ballistic missiles, theatre/tactical ballistic

missiles, aeroballistic and cruise missiles, strategic and tactical aircraft, as well as to engage AWACS-type aircraft, reconnaissance-and-strike air systems, loitering ECM aircraft, and other air attack assets.

Basic specifications

Max target detection range, km	up to 250
Aerodynamic target engagement envelope, km:	
range	up to 200
altitude	0.025 – 30
Max target speed, m/s	4,500
Target radar cross section, sq.m	0.02 and over
Max hostile ballistic missile launch range, km	2,500
Number of simultaneously engaged targets	up to 24
Number of simultaneously guided missiles	up to 48
Reaction time, sec	7.5
Deployment/out-of-action time, min	5
ADMS continuous operation time, hrs	up to 48

The S-300VM ADM system is a long-range multi-channel mobile air defence system. It can provide effective non-strategic anti-missile and anti-aircraft defence. The system has efficient anti-jamming immunity and therefore is capable of engaging air targets in intensive electronic and fire counteraction environment, in any weather, by day and night.

Composition

A typical S-300VM ADMS includes:

- target detection and designation unit;
- up to four SAM systems;
- missile and technical support assets.

The target detection and designation unit includes:

- 9S457ME command post;
- 9S15M2 (or 9S15MT2E, 9S15MV2E) all-round surveillance radar;
- 9S19ME sector-surveillance radar.

Each SAM system includes:

- 9S32ME multi-channel missile guidance radar;
- up to six 9A84ME launchers with up to four 9M83ME missiles in transport-launch containers;

- up to six launcher/loader vehicles assigned to each launcher. One LLV mounts up to two 9M82ME missiles in TLCs.

Typically, one SAM system includes six launchers and three LLVs.

The missile and technical support assets of the SAM system include:

- maintenance and repair assets for all the elements of the system, as well as integrated functional testing system;
- missile TLC storage and transportation assets, as well as rigging equipment set for missiles loading/unloading;
- training assets;
- a set of spare parts, tools and accessories for all the elements of the SAM system.





Mission

The 9S15MV3 mobile 3D all-round surveillance radar is designed to detect and identify any aerodynamic target as friend or foe, as well as tactical ballistic missiles, and to transmit target track data and bearings to enemy jammers to the command post via encrypted radio or cable communications channels.

The all-round surveillance radar is employed as part of the target acquisition and designation unit of the S-300V ADMS and radar posts of land forces' air defence units.

Composition

- antenna post based on a planar waveguide array, with electronic scanning in elevation and mechanical - in azimuth
- transceiver
- ground-based IFF interrogator
- data processing and control equipment, including integrated digital computer, automated work-stations fitted with air situation displays, diagram-cueing displays, and controls

Features

- waveguide array antenna
- high jamming immunity
- high mobility and self-sustained combat operation capability, which is achieved thanks to the radar components mounted on a cross-country tracked chassis and integrated power supply system, navigation

and survey instruments and coded data and voice communications systems

- built-in automatic test and malfunction detection system

The radar's electronic equipment is arranged in an armoured hull mounted on the tracked chassis.

The 9S15MV3 all-round surveillance radar provides continuous airspace scanning in the anti-aircraft and anti-missile modes of operation.

Basic specifications

Waveband	centimetric
Radar coverage:	
range (indicated), km	up to 320
altitude, km	up to 50
azimuth, deg	360
elevation, deg	up to 55
Scan cycle (depending on operational mode), sec	6 - 18
Data throughput, tracks per scan cycle	up to 250
Crew	4

9S19M2

Sector Scanning Radar

Mission

The 9S19M2 sector scanning radar is designed to detect and identify aerodynamic targets designated by the command post in heavy clutter and ECM environment, as well as to detect and track high-speed small-size ballistic targets (theatre/tactical and air-launched ballistic missiles), and to feed target data (blips or tracks) to the command post via coded datalinks.

The 9S19M2 mobile 3D sector scanning radar is employed as part of the target detection and designation subsystem of the S-300V ADMS and radar posts of land forces' air defence units.

It is a high-energy jam-resistant programmed scanning radar featuring a multi-element phased array with a high amplification ratio and 2D electronic beam scanning of the antenna directive pattern.



Composition

- antenna post with a phased array, a transmitter, and an IFF equipment
- equipment compartment with receiving, computing, and data display systems, and control equipment

Basic specifications

Waveband	centimetric
Radar coverage:	
range, km	up to 175
azimuth, deg:	
anti-missile mode	±45
anti-aircraft mode	±30
elevation, deg:	
anti-missile mode	from 30 to 73
anti-aircraft mode	from 0 to 50
Scan cycle, sec	12.5-14
Number of ballistic targets tracked simultaneously	up to 16
Rate of target updates fed into the CP, sec	1 - 2
Crew	4

The radar equipment is housed in the armoured hull mounted on a tracked chassis.

The 9S19M2 sector scanning radar provides continuous airspace scanning in the anti-aircraft and anti-missile modes of operation.